DOCUMENT RESUME

ED 024 854 AC 002 526

Faculty Handbook. Part II. Improving Teaching.
Department of Agriculture Graduate Schools, Washington, D.C.
Pub Date 67
Note- 79p.
EDRS Price MF-$0.50 HC-$4.50
Descriptors- Academic Standards, *Administrative Organization, *Adult Learning, Educational Objectives, Faculty, Government Employees, *Graduate Study, *Manuals, Program Planning, Research, Special Services, Student Evaluation, Teacher Evaluation, *Teaching Methods
Identifiers- *Department of Agriculture

Part of a faculty handbook by the Graduate School of the U.S. Department of Agriculture, this section reviews and discusses research on adult characteristics and adult learning, (including effects of group structure), the setting of course objectives, conditions required for an effective learning experience, teaching methods, and techniques for student and instructor evaluation. Student motivation, awareness of needs and goals, opportunity to practice learning, suitable instructional materials, and satisfaction are explained in the light of findings from adult and higher educational research. The role of instructors and students in the instructional process is discussed; the values, limitations, and requirements of specific methods are outlined. Also included are 24 references, Allport's teacher evaluation plan, a self-evaluation checklist, and an appendix which suggests teaching techniques. (ly)

AC

Fe

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL OFFICE OF EDUCATION POSITION OR POLICY.

FACULTY HANDBOOK

Compiled with the cooperation of
the Committee on Academic Excellence
J. James McPherson, Chairman
H. Nelson Fitton
Forest H. Green
Eugene I. Johnson
Joseph L. Matthews
Wayne D. Rasmussen
M. Clare Ruppert
Fred Schulman
David O. Weaver

"PERMISSION TO REPRODUCE THIS COPYRIGHTED MATERIAL HAS BEEN GRANTED BY John Holden
Dept of Agriculture
TO ERIC AND ORGANIZATIONS OPERATING UNDER AGREEMENTS WITH THE U.S. OFFICE OF EDUCATION. FURTHER REPRODUCTION OUTSIDE THE ERIC SYSTEM REQUIRES PERMISSION OF THE COPYRIGHT OWNER."

Graduate School
U.S. Department of Agriculture
Washington, D.C.

ED024854

AC 002 526

Copyright 1967 by the Graduate School,
U.S. Department of Agriculture, Washington, D.C.

Published by the Graduate School Press
U.S. Department of Agriculture
Washington, D.C. 20250

Contents

Page

Foreword i
Acknowledgments iii
Introduction. iv

PART I. THE INSTITUTION OF WHICH YOU ARE A PART

Organization and Administration. 3
Your Colleagues. 3
Your Teaching Situation and Relationships 4
  Academic Standards and Procedures. 4
    Admission requirement 4
    Standards of instruction 5
    Syllabi and course plans. 5
    Quizzes, examinations, and course critiques . 6
    Grading system. 7
  Relationship of Instructor to the Graduate School. 9
  Relationship of Instructor to Other Instructors . . 10
  Relationship of Instructor to Students 11
Graduate School Services to Faculty and Students. . . 11
  Information and Library Services. 11
  Graduate School Bookstore 12
  Audio-Visual Equipment and Services 13
  Films Available from the Graduate School 14
  Office of the Registrar (Evening Program). 14
  Student Guidance Services (Evening Program). . . 14
  Correspondence Program 15
  Special Programs Department 16

PART II. IMPROVING TEACHING

The Teaching-Learning Process. 21
Adults as Learners 21
  Research on Characteristics of Adult Learners. . 22
  Research on Methods of Teaching Adults 24
  Research on Group Structure and Its Effect on Learning 26
Planning the Adult Course. 27
  Deciding on Objectives 27
    Concepts 28
    Skills 29

CONTENTS (Continued)

Page

Values. 30
Sources of objectives for the course. 30
Examples of some objectives for specific courses. 33
Stating educational objectives 35
Using the objectives in course planning. 35
Keeping course content appropriate to the situation 35
Designing Learning Experiences. 38
Condition I. The student must be adequately motivated to change behavior 38
Condition II. The student must be aware of the inadequacy of his behavior. 41
Condition III. The student must have a clear picture of the behavior which he is attempting to adopt. 42
Condition IV. The student must have opportunities to practice what he is learning. 43
Condition V. The student must have available a sequence of appropriate materials. 45
Condition VI. The student must gain satisfaction from learning 47
The Function of Instructing 48
Methods of Instructing. 52
Evaluation of Student Performance 57
Uses of evaluation 57
Validity of an evaluation 58
Reliability of an evaluation 61
Objectivity of an evaluation 62
Methods of evaluation. 63
Other evaluation methods 65
Everyday evaluation. 66
Analysis of Teaching Styles 66
Allport's teacher evaluation plan 66
Self-evaluation checklist. 71

Bibliography 73
Appendix 77
Item A - General Information About Student 78
Item B - What Is Your Idea? 80

CONTENTS (Continued)

Page

Item C - Kinds of Problems Encountered by Student in Work Situation 83
Item D - The Problem of Effective Teaching and Learning 85
Item E - A Study - Discussion Outline 91

PART II.
IMPROVING TEACHING

The Teaching-Learning Process

The quality of classroom instruction has long been recognized as the most significant criterion of the strength of an educational institution. Maintaining high quality of instruction is currently an acute problem in American colleges generally. Rapid expansion in fields of knowledge, mass enrollments of students having widely varying backgrounds, increased concern by students and the general public with critical analysis of faculty performance — these pressures are forcing a complete re-evaluation of the curriculum, the role of the faculty member, and the whole teaching process.

Graduate School instructors have demonstrated an interest in gaining better insight into the teaching process, in developing a basis for evaluation of their own efforts as teachers, and in solving related problems.

No higher purpose can be sought by an instructor than to stimulate students to intellectual adventure. Such an ambitious purpose calls for instructors with considerable sensitivity to student potential and need and with genuine commitment to their own intellectual enlargement.

There are those who seek improvement only in greater mastery of the subject matter which they teach. The thesis of this handbook is that there is a second area of concern of equal value to instructors, i.e. the improvement of the means by which students are led to feel the impact of course content and to use it to enrich their own creative ingenuity. Mastery in this latter sphere of teaching has been thought of as an art. The art of teaching is far beyond the modest scope of this handbook. The most that can be expected is that the process described here will aid instructors to undertake curriculum planning with awareness of the adult students' potential and need.

Adults as Learners

Until recently, not much research on adults as learners was available. What findings there are give only a very general picture as a basis for teaching.

Instructors are likely to assume that because students have had the necessary prerequisites and have chosen to enroll in a course that they are virtually all ready for whatever instruction is to be offered in the course. This is almost never true, especially in an educational institution attracting such a heterogeneous adult group as does the Graduate School. One of the first steps in dealing with a class, then, is to get as much relevant data as you can about each student. This is not very difficult in a small class; but in a large class, of course, this has to be reduced to essentials. Where feasible, short questionnaires, pre-tests, preference check sheets, and informal discussions will aid you to understand student potential and problems.

Skillful questioning is the best way to determine "where the students are" in any area of the course. Andre Morize (4b), Harvard professor, advises teachers with a small class to move about the classroom and "speak not to them but among them". In this way you give each student, to some extent, an impression that for a few minutes he or she has individual undivided attention. Your interest in each student as an individual will break down feelings of personal isolation and better enable you to inventory what students have in stock in the way of abilities and interests and how effectively they use their assets. Ways to individualize teaching will be explored in a later section.

Since teaching in large classes precludes adequate data collection on student abilities, aptitudes, and interests, you will, no doubt, welcome any available research findings on adult learning.

Research on Characteristics of Adult Learners

You may find it useful to understand that current social science research involves social psychology, human development, and adult education. Such research shows that:

-- Under most circumstances, age changes in primary ability to learn are small; differences in individuals are more readily attributable to the processes of perception, expectancy set, attention, motivation, and physical state than to age (15).

-- Years of schooling is a more relevant variable in learning capacity than is age. If an adult has learned to learn, there is no reason to believe that he cannot continue to learn (15).

-- In some cases, speed of performance and perceptual acuity may limit the amount of actual exposure to learning that is experienced by the adult learner in a given situation (15).

-- The majority of adults limit their interests in learning to the vocational. Yet in recent years, more adults are holding positive attitudes toward abstract learning. Novelty operates to intrigue and capture interests of adults (15).

-- Adult classes tend to contain a high proportion of individuals with positive achievement motives (15).

-- On the other hand, endocrine changes due to aging can be expected to alter drive levels of motivations which enter into learning. The teacher's goals not-withstanding, adults are not always interested in maximizing learning. They are inclined to distribute their energy and involvement to the kind and amount of learning they themselves feel would be most beneficial (16).

-- The adult has a distinct need for self-growth and development and for the establishment of personal relations with others (16).

-- Adults are concerned with the maintenance and enhancement of their social worth and success. In fact, this is perhaps the primary source of motivation for adult learning during most of the life span (16).

-- The instructional enterprise, however, presents risk to the learner in that a public display of ignorance may lead to a loss of prestige and social worth. Authority interactions between the adult student and the instructor must be such that the student does not experience a loss of autonomy (16).

-- No disrespect must be shown to adult students who feel that they are unable or not "ready" to participate in a learning venture (16).

-- Instructional goals proposing new behaviors should be in keeping with the personal needs and life situations of the adults participating in learning situations (16).

-- Adults must be free to assess and to reject or accept the "expert" knowledge of the instructor in light of the realities of their own life experiences. Therefore, aggressive reactions to ideas or values contained in the course content must be permitted by instructors of adults (16).

-- Despite the predominant attitude of passivity and nonresponsibility of most adults in learning situations, they must be taught that learning cannot go on without a real sense of responsibility on the part of each individual learner. The adult must assume responsibility for participation to a degree which will provide an effective contribution toward the achievement of the instructional goals. Instructors may have to give disproportionate attentions to the development of this sense of responsibility (16).

-- Learning requires the exchange of energy for behavior. It takes excitement to make this exchange. Not enough tension or excitement will result in failure in exchanging energy for behavior; too much tension will dissipate energy without channeling it into the desired behavior (16).

-- Many adult students have conflicting motives. A common conflict is between dependence and independence. Fear of failure and need to succeed are twin motives to watch for among adult learners (16).

Research on Methods of Teaching Adults

You might find it helpful, also, to review briefly a few findings from current research on teaching styles and methods. Lest you expect too much of research on teaching, however, it is well to consider this caution: Research on adult learning has brought about no major breakthrough in matching personality characteristics to teaching methods. There is no evidence to show that any teaching method is generally effective in achieving educational goals for all types of students (15). Within this limit it is possible to say:

-- Adults generally respond well to friendly permissive teaching styles, except those less able students who are strongly authoritarian and rigid. Authoritarian students, especially the more anxious ones, prefer a high degree of teacher control of instruction and a restrictive atmosphere. They generally dislike discussion as a method of instruction.

-- Adult students highly motivated toward achievement and of independent temperament do well in learning situations (discussions, independent study) in which they have responsibility for their own learning.

-- Group methods and discussions are more advantageous for the more intelligent adult students than for those of less ability; by means of participation, highly intelligent students develop skill in critical thinking.

-- Sociable adults seem to perform better in discussion groups than in lecture classes. Affiliation — i.e. establishing and maintaining a positive affective relationship with other students and the teacher — is one of the strongest conscious motives adults have for taking an evening course.

-- Among adults enrolling in courses are many motivated by the sheer joy of accomplishment. These respond well to the challenge of problem solving tasks.

-- In developing concepts and problem solving skills, active participation on the part of the student is more effective than passive listening or observing.

-- Adult students rank higher than college students in wanting teacher authority to dominate in class procedures. Adults often desire certain rigidities.

-- Student apathy may be an irrational expression of resentment against being required to do class assignments.

-- Threats of withdrawal of the teachers' approval affect adults acutely, even to the extent of causing some adults to drop out of class.

-- A high level of anxiety will facilitate simple learning, but beyond an optimal point will hamper complex learning. Anxiety about tests characterizes many adult students and results in poorer work done on examinations than during course work.

-- Verbalization is extremely helpful in identifying common elements and shortening the learning process. Yet adults often have great reluctance to utilize the language of subject-matter fields new to them.

-- The time perspective of adults leads them to evaluate learning from the standpoint of its immediate use.

Research on Group Structure and Its Effect on Learning

Research on groups has established that various group forces are at work in teaching-learning situations. Instructors need to realize that instructional groups are subject to many of the same principles that affect the productivity of other types of groups.

Jensen (14) in the 1960 Yearbook of The National Society for the Study of Education has identified four relationships which develop in most groups: (1) problem solving and work relationships; (2) authority relationships; (3) social-influence or power relationships; and (4) social acceptance relationships.

Problem solving and work relationships is the dimension most crucial to learning but it is dependent on the other three dimensions. If social or authority relationships have an adverse effect on motivation or participation, the right kind of problem solving relationship cannot be established.

The potential despotism of the instructor can become a threat to the effective functioning of the group; if learners do not feel free to make suggestions, their participation may be inhibited and their decision making may be impaired.

The autonomy of adults places a special responsibility on the instructor. He must be careful not to violate the status and recognition which adult students enjoy in their own occupational circles and friendship. He must not use his authority in a coercive or arbitrary manner should adults disagree with learning goals or instructional methods. Instructors of adults early learn that adult students deeply resent any lack of respect shown them when they feel that they are unable or not ready to participate in a learning venture.

Jensen (14) suggests that in an instructional situation many occasions arise when students feel a need to examine and assess personal reactions to the learning experience through interaction with other members of the group. The instructor needs to recognize the importance of this type of interaction and to allow for its gratification within the group framework. If a class forms cliques and sets up barriers between some of its members the possibilities of creating effective problem solving and task interactions are reduced.

Interaction among and between students directly affects the quality of learning. Often an instructor is totally unaware of the group forces operating. The instructor must so guide members' interaction that each member achieves not only the maximum learning of which he is capable but also a feeling of social acceptance.

In summary, there is an ever increasing fund of research findings from the behavioral sciences which can, when applied, enhance teaching effectiveness. Try them out on your class!

Planning The Adult Course

In designing your course you have three main tasks: (1) Decide on objectives; (2) design learning experiences; and (3) develop evaluation plans.

Deciding on Objectives

Good teaching depends on consciousness of purpose and, of course, purpose is useful to guide the instructors and students in selection of objectives. It is common practice to state course objectives in terms of what the instructor will "cover" in the course. But as Tyler (22) explains, one of the problems of designing an educational course is that the result desired is not in what the instructor does but in the student, for it is he who learns by developing a pattern of behavior which in some respects is new for him. A student who learns anything is changing his behavior in some way: what he knows, what he can do, or what he feels. Objectives are statements of the kinds of changes in behavior the students are expected to attain as a result of study and application in the course. The changes sought are changes in knowledge (including understanding and new insight), skill, and attitudes or values.

The specific direction and level of the change expected should be determined so that both you and the student are guided in planning for learning experiences and in evaluating results. Though you, as instructor, formulate tentative objectives before the course is described and offered, these undergo revision later as the students' educational background and needs demand. Joint student-teacher planning, especially in the opening sessions of the course, will reveal adjustments that have to be made in course objectives. Mature students learn best in educational activities in which they share with the instructor responsibility for setting goals, planning, and evaluating learning they are engaged in.

First, the over-riding purpose must be agreed upon. Is it to be training or education? Tyler (22) makes a clear distinction between training and education. He explains it in these terms: what the learner takes away from an educational program is a new way of carrying on his own behavior. If your purpose is to train a person to do a highly specific job, all laid out in advance as, for example, learning to lay bricks, then you can get the prospective bricklayer to practice laying bricks following the model of the "master" and as he learns how to do it and as he practices doing it properly and gains satisfaction from doing it, ultimately, this becomes his continuing repertoire of skills. This may be the type of learning sought through some Graduate School classes — perhaps in beginning language classes.

But when you are educating for a profession, as Tyler points out, you are dealing with an occupation in which the specifics cannot be laid down because new problems arise and new knowledge becomes available to deal with these problems. Then the question facing instructors is: what is it that an adult student can learn that will enable him to be effective in new situations? This question has led educators to devise new ways of looking at learning. Focusing learning on important concepts, skills, and values gives instructors and students a kind of framework for the course that indicates behavior patterns or objectives, which can be acquired and are not bound by a particular situation. Yet all too many instructors continue to require students to master highly specific facts and skills of only temporary usefulness.

Concepts.—One kind of learning that students get from courses is concepts. When they are trying to solve a problem or deal with a new situation, students have some kind of image as to what they are doing. This something in their minds that tells them what the situation is becomes their conceptualization of the situation. For example, the prospective engineer must conceptualize the design process if he is to utilize what is known about sciences in forming a system by which pine trees are converted into paper. The instructor's role is to help the professional person build concepts and understand concepts that are most useful in guiding thinking, planning, and action. There is a much greater permanency of usefulness in concepts than there is in the particular facts of a given case. For example, one concept quite useful to professional workers in all fields is that of "role". There are the vocational as well as the social roles that give character to the functions expected of people and thus give significant meaning to their actions. In the natural sciences one valuable concept to be emphasized is the complex interdependence of the many diverse types of living things. In planning for a course, the concept to be introduced must be clearly identified.

Skills.—Another kind of learning a student can carry away from a course is a skill. But the instructor must make a distinction, Tyler warns, between a highly specific skill that is greatly limited and a more general and significant skill. For most students, the general skill of problem solving represents an important type of skill. Even though the instructor is concerned only with general skills, not highly specific ones, they are learned through practice in a variety of specific situations. In developing problem solving skills, practice in analyzing various kinds of problems can be provided. For example, practice can be provided in collecting necessary data, in interpreting the data, in constructing alternative courses of action, in assigning priorities to these courses of action, and in appraising results. By calling attention to the similarities and the differences among the approaches required in different problems, you as instructor can structure a course in which students learn how to adapt problem solving procedures to different situations.

A skill, in contrast to an ability, requires a considerable facility, ease, and effectiveness in performance. In order to develop a skill, a good deal of practice is required, spread over quite a period of time. As in the case of concepts, if skills are to be developed, consideration needs to be given to ways of involving these skills in the educational program in more than just a single course.

Values.—Values are a third kind of learning that a person can carry away from an educational experience and that will help him work as a professional. A learner does not operate just in terms of what he sees and how he perceives and conceives the job, nor solely with the skills he develops to handle it. He is also strongly directed by some sort of drive or purpose. In an educational course a student can be helped to discover the satisfactions to be had in some of the important values that can make a difference between being a dedicated professional and one that just goes through the motions.

One value that stands out as very important to students, whatever their field of study, is the value of objectivity toward new ideas. This is not something that is innate in students. They have to learn the real satisfaction that can be had from looking at things in new ways, discovering that there are two sides or more to a question and finding new ideas.

Another value important to professionals is the strong conviction of the worth of every individual and the feeling of satisfaction in seeing every individual do something, become more and more the person he has potential for being. Another essential value to all professionals is the conviction that certain obligations must be met if one is to be respected.

In order to develop values, Tyler (22) suggests that the instructor use the method of exploration or exposure, showing by example that he is willing to expand his own experience. He makes an effort to show that he is looking for values that can be meaningful. He hasn't got all the answers to everything. Such an example can help the student expand his horizon.

There are hundreds of concepts, skills, and values that might be taught; your problem is to decide which are most significant in your field.

Sources of Objectives for the Course.—According to Tyler's (21) notion of curriculum planning, objectives for a course or for a total curriculum can be derived from three sources. First, you examine the background of the students, what they have learned previously, what kinds of attitudes they have towards learning, and their basic abilities to handle problems of the type to be encountered in the mastery of the subject involved.

This gives you a basis for making your teaching student-centered. Even the best of instructors vary widely in the extent to which they make teaching student-centered. Varying opinions are expressed in the lectures compiled by Cronkhite (4). Richards (4a), one of these lecturers, tells prospective teachers that in higher education the instructor is conducting a series of experiments in human growth. But he sees the learning process as such a complex one that, no matter what you know of the student, you can never be quite sure whether in the situation you set for learning you, as the instructor, are inspired or completely inept.

In the face of such a dilemma, he proposes that the instructor's responsibility is to "represent his subject," turning students' interests to the things you believe they should care about but not trying to know each student intimately or to guide directly.

On the other hand, Morize (4b) suggests that the "main preoccupation of an instructor be to establish a human contact." He warns instructors never to allow an "empty space" or "chill zone" to be formed between the instructor and his students. He sees the contact, however, as a function of a love of teaching. The contact then is not so much a personal bond directly between instructor and student, but a mutual enjoyment in the love of the subject and of teaching and learning.

Perry (4c) states the educational counsellor's view. Resistance to the imposition of the teacher's "oughts" and necessaries is universal. "The good teacher's greatest responsibilities and greatest skills lie not in his love of the subject, or in the clarity of his exposition, or in his enthusiasm," he says, "but in his handling of the problems of resistance." He sees the teacher standing "to one side of the direct line between his students and his subject." He warns the instructor to use his authority in such a way as to minimize the possibility that he will excite resistance to learning.

It is, in part, for this same reason, to minimize student resistance to learning that curriculum planners advise instructors to learn as much as possible about student abilities, interests and motivations toward achievement. A second reason cited by Tyler (21) is that knowledge of the present level of educational development in the class can serve to prevent unnecessary duplication of educational experiences already provided by the day-to-day environment or previous schooling of the students.

Instructors might profitably use the first class sessions to collect some data from students.

Tyler (21) states: "almost all of the methods of social investigation can be employed in studying the learner's needs and interests." He enumerates methods, several of which could be utilized by Graduate School instructors:

1. *Observations by the Instructor* - these will give some clues as to the social relations among class members, reactions to assignments, questions asked about topics of study.

2. *Student interviews* - to get information about how students feel about things, their attitudes, their interests, and so forth. Since they are quite time-consuming, interviews have to be limited to a sample of students.

3. *Questionnaires* - useful to establish previous exposure to "root" disciplines from which you expect to utilize concepts. Or they might serve to get an expression of students objectives in taking your course.

4. *Tests* - including tests of present status in skills; concepts mastery, reading comprehension, communication skills, interpretation of data, personality characteristics and special attitudes.

5. *Discussions* - useful in appraising students' abilities in grasping concepts, interpreting and applying them. A few examples of devices of these types developed by instructors of social science courses are given in the Handbook Appendix. Such inquiry will not automatically indicate objectives for the course. With study, however, an instructor can sense the implications of data of these types and derive objectives from them. His objectives for learners can then be adjusted to fit the circumstances.

As a second source of objectives, you need to consider what kinds of demands are going to be made of your students as they attempt to function. What sort of equipment (knowledge, skills, or values) should they have in order to carry on? What are the opportunities provided by the modern world for the fulfillment of the person — for greater service? You can seek answers to these questions in studies of your student's jobs or in writings about current social problems, national needs, current requirements of the profession, and the like. These demands of contemporary life so identified will tend to suggest certain objectives for the course.

As a third area of inquiry, you will want to consider what specialists say their subject fields have to offer learners. Care must be taken lest specialists suggest a level of learning more suited to prepare specialists in the field than generalists. In some way, you must maintain close contact with scholars in your own and in related disciplines so that the current contributions of appropriate disciplines are accurately reflected in what you select to teach. A review of up-to-date literature and discussions with colleagues will suggest objectives from this source that might be considered for the course.

Having studied these three sources, you will have derived an extensive list of possible objectives for your course. You will need to screen this list by asking yourself two major questions: (1) Can this objective be reached, in the time allowed, by mature adults having the level of training and experience the class members likely will have? In this regard, what you know or can read about the psychology of learning will be very useful, as will discussions with fellow members of your Graduate School department of social science. (2) Does this objective fit in with the philosophy of the Graduate School and with your own philosophy of important things to learn? Here, the decision comes through introspection and a basic knowledge of the purposes of the Graduate School.

Examples of Some Objectives for Specific Courses.— To give you some idea of teaching objectives formulated by other teachers, you might review a few examples:

1. *For one unit in a plant science course,* the objectives set up were:
    a. Students know and can explain the meaning of significant terms related to plant growth and

development such as cell division, cell enlargement and cell differentiation, growth factors or substances, hormones, and growth regulators.

b. Students have ability to identify the factors involved and the role these factors play in the variation among plant cells.

c. Students have ability to analyze a diagram of experiments in plant growth and write in their own words an interpretation of the experiment.

2. *For an economics course,* the objectives chosen were for students to have the ability to:

    a. Judge the accuracy and relevance of data.

    b. Perceive relationships in data.

    c. Recognize the limitations of data.

    d. Formulate hypotheses on the basis of data.

    e. Explain in his own words the meaning of specific concepts, including marginal input, diminishing returns, risk, economy of scale.

3. *For a social science course,* major objectives were for students to:

    a. Acquire factual information about the human resources in the community: be aware of its major problems; identify major trends or forces (internal and external to the community) which affect community conditions; and have some concept of possible models of the "good" community.

    b. Develop broader and more intensive interests in the community: increase vocabulary for dealing with ideas about communities; and develop new modes of thinking about familiar problems in this area.

    c. Become aware of the extent to which a given community problem can be located in a context of larger social problems.

Stating Educational Objectives.—You will note that the objectives just stated include three parts: (1) the person(s) whose behavior is to be changed, (2) the kind of behavior desired and (3) the content to which that behavior is to relate. If evaluation is to be undertaken, Mager (17) suggests that it is necessary, in addition (4) to define the important conditions under which behavior is to occur and (5) to define the criteria of acceptable performance. Using this pattern, for example, an instructor stated one objective for a community program development course in these terms:

> Given a number of selected research summaries and statistical data, the graduate student should be able to (1) use these materials to identify potential clientele in his county and decide on appropriate study groups for them; and (2) to state educational objectives for each group in sufficient specificity to serve as an adequate guide for directing educational activities.

Bloom (1) and his associates have developed a classification of educational objectives which will give you some notion of the types of learning which are basic to more advanced levels. His view supports that of Gagné (10), who has identified eight types of learning, arranged them in a hierarchy and concluded that "the complex forms of learning require simpler forms of behavior as prerequisites." In short, to be able to solve problems, a student must first know the discriminations, the concepts, and the principles involved.

Using the Objectives in Course Planning.—The whole purpose of searching sources and writing down objectives as suggested above is to provide guidance in the selection of appropriate learning experience for the student. The objectives of a course need to be continuously reviewed and subsequent decisions checked by them. In their final form, after joint student-teacher planning has taken place, they not only should guide you but also the learner in his reading and in class activities. Finally, they will be the starting point for measuring achievement.

Keeping Course Content Appropriate to the Situation.—There are certain criteria you may find useful in appraising the selection of specific content you are considering for your course.

First, the content must be meaningful to the learners. The needs of each class group vary from previous ones to some extent. Meeting this criterion forces you to consider the experiential background of your students. Where backgrounds vary widely, as is true in most Graduate School classes, varied class assignments and methods of teaching are required to allow for individual differences.

You cannot act as if individual variation does not occur. Nor can you make yourself, as instructor, the "whipping boy" of student failures by concluding that you can eliminate all difficulty by appropriate educational procedures. Somewhere in between, you must be willing to experiment with ways to accommodate individual variability. You can anticipate where difficulties are likely to occur and try to ready individuals, otherwise unprepared for the slow pace of complex learning. Utilizing the grade-contract technique, you may prepare less advanced reading reference materials and other assignments for those who are weak in the subject area. Or the means might be periodic orientation sessions interspersed during the term at such transition points as occur when the teaching focus changes to new concepts or new principles more advanced than those worked on in prior sessions. The purpose of these orientation periods would be to develop in the slower students a state of expectancy for what is ahead and what a mastery of the next short time goal can mean to them. An equally important purpose is to try to dispel internal inhibitions, which build up within those students having a lack of skill in intellectual analysis, during times of mounting frustrations.

Such orientation sessions may be in the nature of open-book study periods in which a group study and discussion technique might be utilized. (See Appendix, item E, for a suggested outline for a study session.) Or the experiment might take the form of a preliminary reporting session in which abler students would be asked to discuss with the class work that they are doing on individual projects or assignments and difficulties that they are encountering. Having able students admit their difficulty may be consoling to the less able.

Such techniques will not make all students equal in ability. They may not release frustrations that inhibit learning. They may add frustrations for the more able students. Yet some experimentation is worth a try if it convinces students you are interested in the welfare of all.

Finally, you must make a conscious effort at all times to avoid giving a disproportionate amount of class time to the advanced students.

Your goal is to devise methods and materials that will challenge the superior students while not destroying the involvement of those who have less power to learn.

Second, content should be based on an evolving conceptual structure that reflects recent research findings in the discipline. If a static course is to be avoided, you must be constantly revising content. Joseph J. Schwab (7) cautions that any body of knowledge is likely to be of only temporary significance. In Schwab's view, the continued research of a given field of knowledge usually discloses new complexities of the subject matter which in turn call forth new structures. These new structures, sooner or later, bring about new directions of inquiry and lead, therefore, to new and more complete bodies of knowledge stated in new terms. This suggests that the teacher must introduce students to the role of concepts in making knowledge possible and give them insight into the particular concepts that underlie present knowledge in the field. In addition, they must stress the reasons why these concepts are thought appropriate and wherein they are limited. The latter task is particularly necessary if the spirit of inquiry is to be encouraged in students.

It is well for instructors to remember Whitehead's (23) vivid phraseology: "For successful education there must always be a certain freshness in the knowledge dealt with. It must be either new in itself or it must be invested with some novelty of application to the new world of new times. Knowledge will not keep any better than fish. You may be dealing with knowledge of the old species, with some old truth; but somehow or other it must come to the students, as it were, just drawn out of the sea and with the freshness of its immediate importance."

Finally, instructors must look into what is known about ways in which learning takes place in order to make decisions as to what specific content to include and in what order. This becomes the focus of the next section of this Handbook.

Designing Learning Experiences

Once you have determined the objectives you hope students will reach in your course, you have the task of creating the situation in which learning can take place. Methodology continues to be of vital concern to adult educators. With the realization that learning is an active process, instructors have decreased emphasis on the lecture method. Rather, they concentrate on the means by which students can be deeply involved in efforts to assimilate and apply learning. What the learner takes from class depends on his response to the flow of information coming to him through his senses, how he screens from the flow those items to which he pays attention, how he gives meaning to them and how he fits them into his pattern of thinking. Until the individual internalizes and reorganizes ideas in a way meaningful to himself, there is no real learning. The circumstances of learning can have a significant effect upon this selection and reorganization of information. Instructors, therefore, need to investigate the conditions under which changes (in knowledge, comprehension, skill, attitude, values) are likely to occur and if possible exert sufficient control to develop those conditions which are found most favorable for the achievement of learning objectives. Research points to the following conditions as those which seem most likely to encourage learning. In planning your course you will want to consider the extent to which you have provided these conditions.

Condition I. *The student must be adequately motivated to change behavior* (18).

The instructor of adults must be concerned with motivation at two separate levels (18). Since enrollment is usually voluntary, the student must be motivated to attend in the first place; once there, motivation must be kept sufficiently high for learning to take place.

The motives which bring a Graduate School student into a learning situation are not necessarily those which keep him there. By and large, Graduate School students study in their vocational field (as do the majority of adults) to improve the way they handle a job and only incidentally to satisfy a love of learning. The vocational area is the only one in which motivational forces outside the learning field itself are strong enough to overcome the resistance within it. The very high dropout rate in adult education programs which are not vocationally based is proof of this fact (18).

Whether original motives can last or can be transposed into ones appropriate enough to bring about the learning you set for students depends in large part on instructional skills. The transformation of original general motives requires direct, conscious effort on your part as an instructor (18).

Motivation, though difficult to define, can nevertheless be approached analytically and can thus be dealt with in smaller, more manageable parts. Use of short time goals that make sense to students, feedback, and joint assignments with fellow students help to keep up interest. Reluctant students may contribute effort to a group assignment which they would not give to an individual project. Each learning situation is influenced by both positive and negative psychological forces. While the positive forces (initial interest in enrollment, association with others, pride in success) are encouraging the student to change in relevant ways, the negative forces (nighttime study after a busy working schedule, fear of failure, etc.) are fostering resistance to change or are acting to lead the learner out of the field altogether (18). You must identify these resistant forces and concentrate on their removal. It may be impossible to eliminate night sessions; but we can vary the pace and provide students with challenging activity so that time does not drag. If resistance is not dealt with adequately, the group will disintegrate or lapse into passivity.

It is quite obvious to all instructors that students won't learn much of anything significant unless they feel the need to do so. Feeling a need to learn a specific thing from your course can be caught by students only if you communicate to them your enthusiasms, attitudes, and standards of performance. Garrison (11) tells of an English teacher whose students were little motivated to deal with the questions he posed to them in a session directed toward understanding the principles of rhetoric as exemplified in Shakespeare's "Julius Caesar." Suddenly the instructor jumped up onto his desk and launched into Anthony's speech. His enthusiasm swept the whole class along into enacting the crowd's responses until their feelings were stirred in spite of themselves. In the wake of this dramatic scene he was able to lead them to a really penetrating disucssion of rhetorical techniques or devices (the appeal of propaganda, the incitement of crowd feeling, the nature of mob action) and to an understanding of the marks of a good speech. Garrison concedes that this instructor might easily be mistaken for a frustrated actor; his performance, however, lifted the event out of the category of play-acting into the desired goal of student involvement. Not many instructors can carry off such a teaching episode but there are other ways to stir student feelings and motivate learning.

Garrison (11) recounts another episode in a biology class where students went about their laboratory assignments examining slime mold cultures quite perfunctorily and resignedly. The instructor, sensing the apathy of the students, interrupted their work and asked them to gather around for a little talk. Then he began to describe "the incredible chain of life". . .the apparent purposiveness of all life, its dogged loyalty to functional form, its bewildering variety and universality." As he went on even the least responsive student felt a certain awe. Boredom dropped off all faces and intense concentration replaced it. When the professor finished, the class went back to its laboratory experiments with quickened interest.

The problem of motivation becomes one of organizing the learning experience itself so as to reduce the resistance to change (18). If the student's objectives are at variance with yours as instructor, this gap can be overcome by organizing activities in such a way that the student will begin to derive satisfaction from new ways of behaving before old patterns are relinquished. Here is where you might find use in role playing or other student projects. Intellectual mastery is rewarding when the student recognizes that learning one thing allows him to go on to something that before was out of reach. Thus the cumulative power of learning is evident to the student himself.

If the student does not perceive the proposed learning task as personally important or significant, you must provide or help him find materials which are relevant to his real concerns. You must treat each individual as though he were the type of person you want him to become.

A student unwilling to attempt certain kinds of changes may fear failure or see changes as an attack on attitudinal patterns which he values. Group forces, if skillfully used, can provide a supportive atmosphere and can exert great influence on attitudes and values (18).

One word of caution. Woodruff (24) warns that instructors who try to base a course on the natural interests of people will find it very difficult to succeed time after time without abandoning much of the content of the curriculum. Such concessions just fortify the immaturity of students' motivation and lets them defeat the main job of education.

Condition II. *The student must be aware of the inadequacy of his behavior* (18).

It is usually difficult for an adult to acknowledge the necessity of changing attitudes, reorganizing ideas, or acquiring new thought patterns when he is perfectly satisfied with those which are already organized and habitual (18). Such acknowledgement represents a major threat to the individual's ego and can result in defensiveness and resistance. If a student has reached the adult level and is holding a responsible job without knowing certain information stressed in your course, he may tend to think that the information is not very significant. You, as instructor, must be prepared for this possibility and must be willing to help the student recognize his own inadequacy and the significance of what is to be learned.

An indirect approach is usually the most effective (18). In a heterogeneous class group, such as you find in the Graduate School, truly able students can be grouped with the less studious ones in class projects so that differences can spark an awareness of a need for change among the less studious. Insight into their own problems can sometimes be derived by students from the use of case studies of real life situations — in other words, by solving "other people's" problems.

Avoid moral condemnation in dealing with student beliefs and attitudes as this will only increase resistance. There is no excuse for an instructor who belittles attitudes or beliefs held by others. Intergroup relations research suggests that people need to feel that their present feelings are accepted, even if not agreed with, before they can proceed to rationally examine their consistency or their consequences.

It is relatively easy in the skill courses for a student to become aware of the inadequacy of what he is able to do. He tries to perform the skill but the product leaves something to be desired. It is much harder for students blessed with quick memories to realize that their repetition of borrowed phrases and ideas, their learning *about* something, without understanding, is inadequate. There is no set formula for moving students on to a more adequate level of learning. But you might caution students to avoid the common inadequacies in thinking which Garrison (11) identifies:

1. Failure to see valid relationships.
2. Drawing hasty or unwarranted conclusions.
3. Uncritical acceptance of ideas of "authorities."
4. Rejection of evidence which is emotionally upsetting.
5. Not caring enough about an idea or a problem to think about it.
6. Taking a dislike to some subject areas.
7. Lack of reliable methods of obtaining information.

Try to interest the students in working to overcome any of these inadequacies through self-evaluation.

Condition III. *The student must have a clear picture of the behavior which he is attempting to adopt*(18).

The learner can hardly be expected to achieve a reorganization of his perception unless he is provided with a model of the new behavior. Providing this model is a relatively simple process for skill training and most vocational programs. Perception of the model can come from seeing a skill performed or from examining a step-by-step diagram or a "model" set of procedures, etc. Providing a model becomes more difficult, however, for the areas of adult education which deal with cognitive changes at high levels of abstraction. Here the goal is not so much mastery of a prescribed set of concepts or principles as it is insight and discovery.

Nevertheless, to trigger reflective thinking, a model must be presented consciously and deliberately as something which the student knows he is later to apply to his own situation. It cannot be assumed that the learner will catch the meaning simply because he is involved in a certain activity; he must see clearly the "model behavior" he is supposed to be learning (18).

As has been mentioned before, at the outset of the semester you can spend a session or two on student-teacher planning. In this way the conflict in objectives that is inherent in the situation is discovered as the class is launched. What instructor has escaped the experience of confrontation with puzzled students who say, "Professor, what do *you want* us to do in this course? With this assignment? With this reading list?" What *they want* to get out of the course is not clear until the end when they recognize that they succeeded by accident or failed to achieve the level of learning, the "model behavior" that the course requires. For an adult student especially, the first job in a course for him is to know what he wants and why he wants it. Though you may help him identify these wants and recognize the inadequacy of the standard he set for himself, he must discover his own "model behavior" through assimilation of fresh ideas and discovery of his own potential.

The objectives of the learning experience must be developed with enough specificity so that they are readily perceived by the student; though enormously complex, cognitive changes must be defined in detail (18). Time spent in class can be used profitably for the important business of presenting models developed in research or by other students or, better still, by helping the group develop models for themselves through rigorously controlled discussion. The range of techniques available for such activity is wide and includes demonstrations, role-playing, case analysis, diagrams, charts, mock-ups, tape recordings, and other means — supplemented by lecture and controlled group discussion.

Condition IV. *The student must have opportunities to practice what he is learning* (18).

The principle of practice is widely recognized in areas of everyday skill learning; it is difficult, therefore, to understand why it is so often ignored in other types of learning. There must be practice in handling facts, in pursuing logical inquiry, in testing the validity of evidence, and in making judgments. But the fact remains that in many adult classes, it is the instructor rather than the student who is practicing the behavior which is being taught (18).

"Practice" with intangibles, even, has been devised by a psychology instructor in teaching the concept "maturation." He set students to writing short self-portraits as honestly as they could and analyzing them objectively (11). Through the self-portraits, students were to discover how they looked to themselves by comparing themselves to a theoretically ideal mature person. The "portraits" were anonymous as they were read and analyzed by the class; comments were linked to outside reading and hypotheses concerning the meanings of the statements were advanced.

An art instructor and a psychology instructor teamed up in one school to give students "practice" with the concepts of "prejudice," "presupposition," and "stereotyped perceptions" (11). Each art student painted a portrait of the same person. Then the psychology students, not realizing the same person appeared in all portraits, were asked each in turn to describe as freely as they could what kind of person they thought the model who had posed for the portrait was and what they saw and felt about the model's personal traits. After all the ideas of the psychology class had been explored, the art students were asked to describe what they were aware of as they painted the portraits. The comments of both groups of students were as varied as the paintings themselves. Before the session closed the instructor had drawn out from students the common psychological factors that were operating in this "practice" session.

Part of the difficulty of practice, especially in the field of adult education, is the element of time. Adults are often unwilling to practice on their own, and group sessions are not long enough to allow for the slow process of trial and error (18). The learner needs time to make mistakes as well as time to work through the behavior correctly. It is often surprising how much additional time students will put on self-imposed class projects.

Practice is so crucial for total understanding that you must use all the ingenuity you can muster to provide for it. In some courses this means developing special kinds of material (such as case studies, problem analyses, written exercises, etc.) or modifying some types of group activities already generally in use in adult education (such as discussions, role-playing, group projects, and the like).

Our concept of practice must also change and we must involve the student in active search for meaning. Providing practice is tricky. You must be clear about its focus. Corey (3) reminds us that if students get a great deal of practice following detailed directions given them by the faculty, they are learning to follow directions, not learning to identify problems and resolve them. It is not sufficient for the instructor to demonstrate a technique and explain it completely. If the student learns, he must be active in some appropriate fashion; he must have the opportunity to do what he is supposed to learn to do. The practice must be as genuine and as real to the student as circumstances will allow. A student learns something of fact, principle, and mode of attack in a nutrition course if she is attentive to the instructor who is discussing how to work out a diet for a hypothetical sick person. She learns more if she herself works out a diet for some hypothetical sick person. She learns most if she is solving a diet problem for a relative or friend.

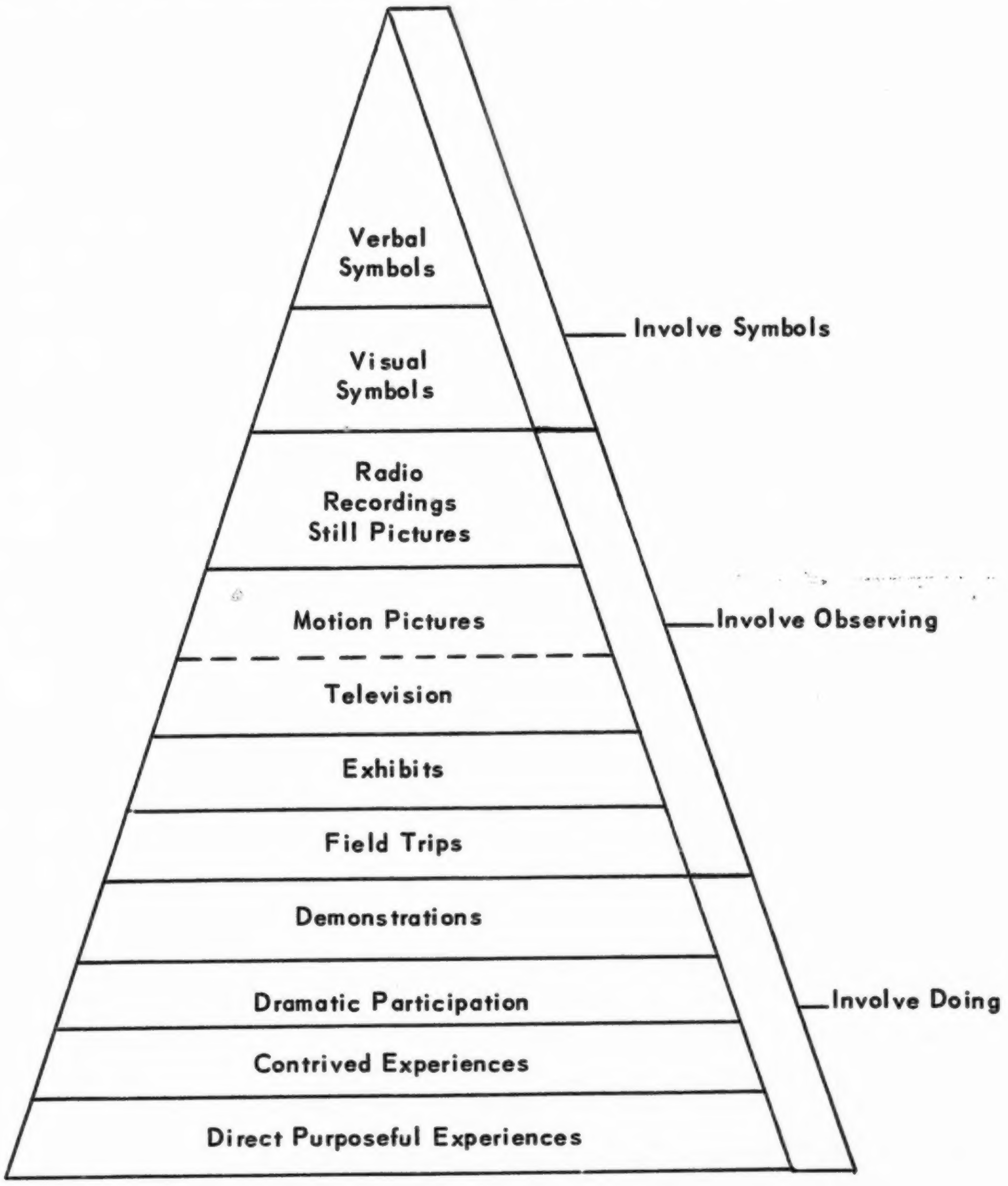
Condition V. *The student must have available a sequence of appropriate materials.*

Better materials are being developed for adult class use than were formerly available. But too often, materials from educational contexts (high school or college) are imported without regard to the particular needs of adults. The material must be intellectually appropriate; this does not mean, however, that adults should automatically be treated as graduate students simply because they are considered "mature" (18).

Certain fields of study have inherent advantages in the availability of attractive teaching materials. For example, in the natural sciences you can bring students into direct contact with materials that are *alive*. The material itself is a basic tool for teaching, carrying a vividness and force that makes it seem more vital than knowledge from books (4d). Equipment and apparatuses that allow students to manipulate, examine, analyze, and evaluate materials assure that the students are active in learning.

In many fields instructors use field trips and other observations to enable students to learn under natural conditions. These are more difficult to arrange for adult students in evening classes and for certain subject fields but are worth looking into where appropriate to the learning involved. Tape recordings can bring into the class for analysis situations that cannot be visited due to lack of time.

Dale (5) offers his "cone of experience" as a visual aid to explain "the interrelationships of the various types of audio-visual materials." At the base of his diagram, Dale puts direct purposeful experience. Upon this case he mounts, one by one in the order of abstraction, the various devices


Verbal Symbols
Visual Symbols
Radio Recordings Still Pictures
Motion Pictures
Television
Exhibits
Field Trips
Demonstrations
Dramatic Participation
Contrived Experiences
Direct Purposeful Experiences
Involve Symbols
Involve Observing
Involve Doing

and aids used in learning. Dale cautions that the cone is not to be taken in absolute literalness as a mechanically flawless picture. Increasing abstraction, he says, does not mean increasing difficulty. Verbal symbols are used with every other material on the cone though they are abstractions. Yet to be effective, the more abstract methods of teaching must have the underpinnings of concrete experience. Dale does not mean to imply that learning moves systematically from base to pinnacle. There is no superiority of one sense over another in learning. What he does say is that instructors can help learning by offering all ways of experiencing that relate to the specific subject. Visual aids can reveal in a few minutes what it has taken months to capture.

Needless to say, the manner of using visual aids conditions their effectiveness. You need to remember when using slides that each one may require a different interval of viewing time, so calculate carefully the number you need to use in one presentation. Remember that charts, diagrams, and graphs are visual aids and that their use does not assure that the conceptual meaning is entirely clear. Without the concise verbal statement of the concept, you may not have presented the idea at all; and on the other hand, a concise verbal statement may have to be complemented by a visual aid. A preliminary clue as to what to look for in a film and a post-viewing summary of what was seen adds immeasurably to the learning. Dividing the class into groups each with certain ideas to listen for in a lecture or panel discussion may add depth to the follow-up open discussion.

Condition VI. *The student must gain satisfaction from learning.*

There are three possible sources of satisfaction for your students in the class situation — associations with you, with the class group, or with the subject matter on which the class focuses. The more attraction any one of these holds, the more the students will accept the standards, the ideas, or values to which they are being exposed. That is, the more satisfaction they receive in the situation, the more influence they will accept from it. Satisfactions from achievement are positively related to the effort that went into the learning.

In order to heighten effort, you might find it useful to lead the student first to feel dissatisfaction or doubt concerning his present attitude, knowledge, or skill. Questions must be asked. Is a way of thinking incompatible with some principle and so with a previously accepted idea? By introducing disturbing ideas, you can cause uncertainty or tension so that the goal of learning is to restore equilibrium. Reaffirmation of the original idea may be the result. But the important thing is that the student has made a serious effort to formulate hypotheses, test them out with objectivity, and reach a better grasp of pertinent evidence. The real gain is that students have pushed their thinking farther than it has gone before. The resulting satisfaction is the intrinsic and best reward of learning. It is also a condition of undertaking the next stage of learning, whatever it might be.

Incorporating the above conditions into teaching situations requires considerable ingenuity. No less formidable is the task of carrying on the functions of instructing.

The Function of Instructing

In functioning as an instructor, your behavior can vary markedly.

For example, say you have as an objective for students to develop an understanding of a concept or a principle. Your part in developing this concept or principle with the class might range from active domination of the session to virtually complete passivity. Following patterns described by Eaton (6), you might plan any one of these ways to get the concept across (Chart pp. 49-51).

In general, as students mature in a field, they should progress in their ability to handle abstractions. At the onset, the beginner is dependent on the instructor for explanation and illustration, for analysis, and for comparison and contrast. But obviously, as students become more able to clarify meaning and make application they are less dependent.

Gagne's (10) description of the functions of instructing will gave you a concise summary of the salient points to

Example	Your Part	Students Part	Probable Reaction
Plan 1 Concept to be introduced: "conditional reflex."	You cite facts of experiments; examine results; derive process of conditioning. Explain, diagram, and test formula with other cases.	Read assignment. Are relatively passive.	Satisfactions in learning are not often at high potential (but technique is economical from administrative standpoint). Can be used with large classes.
Plan 2 Principle to be examined: Effect of heat on proteins—meats, eggs, etc.	You pick out the principle for students from certain instances, using lecture or demonstration.	Then students find it in other instances or apply to other instances in laboratory, in conference, or in reporting.	Combines well merit of economy and effectiveness. Can be used even with rather large sized classes.

Example	Your Part	Students Part	Probable Reaction
Plan 3 Concepts to be developed -"direct taxes" "indirect taxes."	You and student collaborate in examining, comparing, and contrasting instances of the concept.		Usually highly effective in getting satisfactory response and fairly economical for classes not too large for discussion.
	You cite cases, assign taxes to be classified as direct or indirect. Subsequently, you present disagreement; propose definition.	Students prepare own lists by classification system. Students test out definition by reconsidering list.	
	You facilitate analytical activity (assign, suggest, question, criticize) rather than to point out and expound the principle.	Student makes effort to "discover" and apply.	

<table>
<tr><th>Example</th><th>Your Part</th><th>Students Part</th><th>Probable Reaction</th></tr>
<tr><td rowspan="2">Plan 4 Understanding concept of "median" and seeing how many times it is the same figure as the "mode" or the "average."</td><td colspan="2">You collaborate with students in attack on introductory cases but "step out of the picture" as soon as there is evidence that students begin to catch the idea.</td><td rowspan="2">Highly effective with a small group. Fairly economical.</td></tr>
<tr><td></td><td>Students are solely responsible for all or most of the comparing and contrasting.</td></tr>
<tr><td>Plan 5 Skill to be developed: observation and comparison of biological life.</td><td>You select students and assign priority to present cases; then assume no further responsibility.</td><td>Student gets what he can out of case; he must discover, if he can, and apply, if he can, the idea exemplified.</td><td>Time-consuming. Effective with small groups of highly motivated students; ineffective with majority.</td></tr>
</table>

hold in mind while planning learning experiences. In essence, he states the functions in these terms:

1. Construct the learning in a stage by stage fashion.

2. Take into account at each stage the previously acquired capabilities of the students.

3. Provide reinforcement for the retention of these capabilities and devise the specific stimulus situation needed for the next stage of learning which involves:

    a. Communicating verbally what he is going to achieve,

    b. Reminding him of what he already knows,

    c. Directing his attention and actions, and

    d. Guiding his thinking along the lines that evoke desired behavior.

4. Encourage knowledge transfer or generalization by use of previously acquired concepts in novel situations (group discussion appears to be well-designed to accomplish this function).

Methods of Instructing

The way in which the instructor organizes these functions is commonly termed his methods. You may wish to give study to the advantages and limitations of those most frequently used in higher education. They are:

1. Lectures (4d)

    a. Chief Characteristic: allows for utilizing effective power of the voice.

    b. Special Values:

        1. Allows for transmitting much to many students in limited time.
        2. If well organized and delivered, can convey enthusiasm, keen interest and powerful persuasion.

3. When presented by expert, factual matter gains vividness; commands responsive attention.

c. Limitations:

1. It is a continuous stream of one-way communication.
2. Exerts pressures on students to keep up with note-taking and, at the same time, maintain pace to adequately understand.
3. Can be routine.

d. To Make Effective Use:

1. Write out notes which furnish adequate guidance in readily accessible form. See that they provide you with the continuity, the emphasis, the transitions, and relations in essential points of the subject matter to be "covered."
2. Make complete set of notes so easily comprehended that you have to give them only an occasional glance.
3. Next, make a condensed outline on one or two pages, or on cards.
4. Next, learn lecture thoroughly.
5. Pay attention to rate of delivery.
6. In delivering, change pace occasionally and change sentence length.
7. Gauge effectiveness of lecture by response of students.
8. Use illustrations, humor, or colorful expressions where appropriate.

2. Group Discussion (4d)

a. Chief Characteristic: requires student participation.

b. Special Values:

1. Induces contributions of ideas and interpretations from students.
2. Clarifies comprehension and understanding.
3. Provides impart of points of view of others.
4. Gives practice in self-expression.

a. Limitations:

   1. Impractical to expect general participation with more than 10 - 12 in a group.
   2. Ground could be covered more effectively by other methods.
   3. Danger of fostering superficial glibness.

d. To Make Effective Use:

   1. Instructor must exert guidance, stimulus, and control.
   2. Choose topic favorable for group discussion (somewhat controversial); one which permits progressive development of a line of reasoning or train of thought.
   3. Students must have something to contribute (some knowledge, background, or experience that is pertinent).
   4. Work for general participation by the entire group — constructive interaction of different views.

3. Seminar (4d)

   a. Chief Characteristics: requires student research and discovery; constructing something new in field knowledge.

   b. Special Values:

      1. Discovery must be done by student, not by the instructor (though instructor's responsibility is heavier than in any other kind of course).
      2. Requires more than learning to assimilate, to acquire general ideas, and to get acquainted with fundamental trends.

   c. Limitations:

      1. Requires of students prerequisite knowledge of general bibliography in the field, knowledge of the use of libraries, and knowledge of successful methods of investigation in problems to be studied.
      2. May require elimination of students not grounded in preliminary information, or devoting opening sessions to exploration of library resources.

d. To Make Effective Use:

1. Map out work at opening meeting, i.e., define the problem.
2. Choose a problem limited in scope, clear cut, without too many implications.
3. Clarify purpose and limitations of the problem.
4. Distribute various topics among students.
5. Set a standard for others and raise the level of the seminar by having most alert and informed students "go first."
6. Each session should give the impression of something complete, well-rounded.
7. Have personal consultations with each student prior to his reporting in order to make sure he is on the right track and will not waste time.
8. Have students use all notes, quotations, facts, and data they want for their presentations but never allow them to "read papers."
9. Discuss and criticize presentations as well as contents of students reports. (Warn students beforehand.)
10. Hold discussions and arrive at conclusions.
11. At last meeting of seminar, instructor contributes a general conclusion setting forth the "contributions to knowledge" which are fruits of the course.
12. As a reward, have student papers of real worth revised, rewritten, published and duplicated.

4. Field Trips (4d)

a. Chief Characteristic: Direct study under natural conditions of the environment.

b. Special Values:

1. Vividly impress students with life of activity.
2. Gives first hand experience.

c. Limitations: requires undue time and extensive provision for transportation.

d. To Make Effective Use:

1. Plan carefully.
2. Make evident prior to the experience what the inter-relationships are in the activity so that the meaning of the experience is grasped.

        3. At close of field trip, summarize and draw on students to interpret what they have seen.

5. Case Method

    a. Chief Characteristic: concrete situations; segments of actual life, reported as closely as possible and including the surrounding circumstances.

    b. Special Values:

        1. Begin to get a more detached and thoughtful approach to questions.
        2. Lifts learning from memory work to analysis.
        3. Requires students to form own conclusions about values.

    c. Limitations:

        1. Students bring to the problem emotionalized reactions to the problem.
        2. Some students have great interest in particular facts and situations but are unable to generalize; others have a preconception or generalized view which explains all problems.

    d. To Make Effective Use:

        1. Instructor must de-emotionalize the situation.
        2. Instructors' task is to relate particular situations to a general theoretical apparatus (uses theory as a tool of analysis).
        3. Instructor must be explicit in separating the level of analysis from the level of facts and situations, and each of these from the value judgments and social judgments that influence conclusions for policy.

With some skill in such a variety of methods the instructor in the Graduate School might feel confident that he can change the pace of classwork and adapt learning to individual preferences and capabilities very adequately.

Evaluation of Student Performance

Anyone who has been an instructor of a course knows that one of the purposes of evaluation is that of obtaining a basis for assigning grades to the students. Right or wrong, grading is one of an educational institution's accepted policies.

Sometimes an instructor will make a judgment at the end of the course based on his observations during the course and give a corresponding grade to each student. He may even grade according to the notion that a few should fail and a few should get "A" with the majority in between, and assign grades accordingly. Grading on a curve, however, may not be advisable if the purpose of teaching is to help the student master a subject or technique. If grades are to be used, they should be used only to show the degree to which mastery has been achieved.

In some cases an instructor may formulate 10 questions and have the students write answers that are then read and graded by the instructor.

To reduce the subjectivity of grading essay examinations, some instructors prepare a true-false test and assign the "right" answer for each statement. Anyone with a key of "right" answers can grade a true-false test and get the same numerical result as any other person. The instructor can array the scores from high to low and assign grades. The instructor is satisfied that he has been fair and objective.

Uses of evaluation.—But something seems to be unacceptable about each of the above methods of grading. Each seems to have missed the important point. During and after teaching a course, no doubt, you are interested in whether or not your students have "learned anything." You also wonder whether certain teaching procedures have "gotten across your points" and how you could present them differently to improve your instruction.

Teaching is more than just telling. It is getting the students to actively participate in the process of learning. Did you do this? Was the subject matter "over their heads?" Did you begin where the students could understand? Did you assume (often unknowingly) that they understood certain basic concepts at the beginning of the course and was your assumption correct? How about your terminology — was it too academic? Evaluation is involved in answering these questions.

As instructor, you are concerned with the improvement of instruction. You want to know the progress students are making in the objectives of the course. The objectives are the changes in behavior which are expected to result from the learning experiences which you have provided for the students. About all you can do is to provide these learning experiences and encourage students to profit from them. The students must do the learning. Learning is a personal matter. An instructor uses evaluation to determine his students' progress.

You are also concerned about diagnosing the difficulties the students are having in reaching the learning objectives of the course. And when you discover these difficulties, you wonder how you can change the learning experiences or provide new ones which will increase the speed of learning toward the objectives. Here again, evaluation is involved.

Of course you must "turn in" grades for your students. You need a valid, reliable, and objective basis for these grades. They should reflect achievement in the educational objectives of the course.

Evaluation in teaching is a means of getting information which you can use to form a judgment, make a decision, or draw a conclusion about the progress students are making toward the objectives of the teaching.

Validity of an evaluation.—Criteria by which to judge your efforts at evaluation and methods of doing an evaluation are explained by Frutchey (8) in these terms: "Validity of an evaluation refers to the kind of evidence collected. Valid evidence is determined by the kind of behavior expressed by the objective."

If the objective is to *acquire knowledge* of concepts and principles in a subject matter area, then the teaching is directed toward the presentation of that knowledge and its retention. The evaluation consists of (1) defining the behavior that will be accepted as evidence that the student has acquired that knowledge of concepts and principles and (2) providing situations in which students can demonstrate whether they have *acquired* those concepts and principles.

For example, the following is one item of a knowledge test:

q. Why do living organisms need oxygen?

(Check answer that applies)
--a. To purify blood
--b. To oxidize waste
--c. To release energy
--d. To assimilate food
--e. To fight infection

If the objective is to *understand* the concepts and principles, the teaching is directed toward an understanding of the concepts and principles. The evaluation consists of (1) defining the behavior that will be accepted as evidence of understanding and (2) providing situations in which students can demonstrate that they *understand* those concepts and principles.

For example, the following question was designed by Miller to test a student's ability to distinguish among different kinds of relationships (18):

q. Under which of the following conditions would you expect the mobilization of labor to be greater?

--In an all-around perfectly competitive labor market.
--In a labor market where employers have a lot of monopoly power over the hiring of labor.
--Mobility of labor would be about the same whether you had a lot of competition or a lot of monopoly in the hiring of labor.
--You can't really say; we just don't know enough about the relation between mobility of labor and the nature of the labor market.

If the objective is to *apply knowledge* to new situations, the teaching is directed toward this type of behavior. The evaluation consists of (1) defining the behavior that will be accepted as evidence of the student's ability to apply knowledge and (2) providing situations in which he can express his ability *to apply* concepts and principles to new situations.

For example in a science class, the students may have studied the concepts and principles of combustion. As a result, the students may be expected to apply these concepts and principles to situations new to them. In the following illustration the mental behavior expected is that the student will predict what will happen and give his reasons.

> Natural gas which has not been previously mixed with air is burned in a gas jet. At another similar gas jet the natural gas is mixed with air before it is burned.
>
> Will there be any difference in the amount of light given off by the flames of the two gas jets? Why?

When applied to new situations the mental behavior is more than the recall of knowledge from memory. Students are required to relate and apply their knowledge of concepts and principles to predict outcomes in situations new to them. The simple illustration just given can be adapted to more complex problem situations in other fields of study.

If the objective is to *interpret data*, the teaching is directed toward this type of behavior. Students are provided learning experiences in which to practice the interpretation of data and the criteria for avoiding errors in interpretation of data and the criteria for avoiding errors in interpretation. Evaluation consists of (1) defining the behavior that will be accepted as evidence of the students' ability to interpret data and (2) providing situations in which they can demonstrate their ability in this type of behavior.

In the following illustration the behavior expected is that the student will make a reasonable interpretation from the data given about the effect of sunlight on the germination of seeds.

> A grain of corn was placed upon moist blotting paper in a warm (20°C) dark room. Another grain of corn was placed upon moist blotting paper in a warm (20°C) sunlighted room. Both seeds germinated. What could you reasonably conclude about the effect of sunlight on the germination of these corn seeds?

A further question like the following could be added for the student to react to: "What do those data show about the germination of wheat seeds?"

The above are some examples of types of mental behavior. The same process applies in the teaching and evaluation of attitudinal and physical behavior.

If the objective is to *create attitudes*, the teaching is directed toward this type of behavior. The evaluation consists of (1) defining the behavior that will be accepted as evidence of the students' attitudes and (2) providing situations in which they can express the behavior and thereby show their attitudes.

If the objective is to *develop skill*, the teaching is directed toward providing situations in which the students can practice the behavior and develop skill. The evaluation consists of (1) defining the behavior that will be accepted as evidence that the students have acquired the skill and (2) providing situations in which they can domonstrate the degree of skill acquired.

Stress more significant processes and concepts. The proportion of emphasis you gave to subject matter in teaching should determine the proportion given to that phase in evaluation.

As shown in the preceding discussion, validity in an educational evaluation is the behavioral change in students as a result of the teaching. If the teaching objectives of a course are clearly stated in terms of the behavior expected, they are not only a guide to providing learning experiences during the teaching, but are also a guide to evaluation. Evaluation begins with getting evidence of the degree to which that behavior has been developed in the students during the course. Validity is an essential criterion of an evaluation.

Reliability of an evaluation.—A second criterion of an evaluation is reliability. It refers to the number and variety of situations in which the behavior taught is expected to be expressed. If the number of situations in an evaluation is large enough and is varied enough to be representative of all situations in which the behavior is expected, the evaluation is reliable. That is to say, another evaluation with the same number and representativeness of situations will yield the same results as the first evaluation. A student who scores high on the first will score high on the second; a student who scores low on the first will score low on the second.

We are all aware from our own experience that if the examination had contained different questions we would have scored higher. Many studies have shown the "unreliability of teachers' marks." Students who scored high on the first examination in a course did not necessarily score high on a second examination. Students who scored low on the first examination did not necessarily score low on the second. The correlation between the grades of the same students on the two examinations was low.

The reliability of an evaluation can be improved by increasing the number of questions providing they are a representative sample of the situations in which the behavior is expected. If a hundred concepts and principles are taught in a course, the students are expected to know these concepts and principles.

It is not realistic, however, to expect an instructor to test whether the students know all these concepts and principles. A sample must be taken. If the sample is large enough and representative of the hundred concepts and principles it will be reliable. That is to say, there will be a high correlation between it and a second similar evaluation. The matter of sampling applies to behavior as well as content. Green and McDougall (12) point out that a true-false test of less than 30 to 40 questions is unreliable because too much guessing is involved. On a second test the same student might get an entirely different score.

Objectivity of an evaluation.—A third important criterion of an evaluation is objectivity. It is the agreement among people who are making the evaluation. Here too, many studies have shown the subjectivity of persons grading the same essay examination. One grader will give a student's examination paper a high score and a second grader will give the same examination paper a low score. This is because the two graders have something different in mind when they consider the evidence of behavior in the student's answers.

Thirty teachers were given an arithmetic examination paper containing the answers to ten questions by an eighth grade student. They were told to grade the paper on the basis of ten points for each question.

It seemed that on an examination such as arithmetic there should be very high agreement on the scores the thirty teachers gave. Objectivity should be high. After all, it is easy to see whether the student's numerical answer agrees with the key numerical answer. But such was not the case. The scores given by the thirty teachers ranged from 21 to 88.

The ensuing discussion brought out the different things the thirty teachers had in their minds. Some gave zero to the question if the answer did not agree with the key. Others gave partial credit from 3 to 9 points for the correct method in the same question. If the decimal point was off one place and the rest of the computation and the method were correct, some teachers counted the answer all wrong and gave zero to the answer; others took off only one point and gave 9 points credit.

Objectivity of an evaluation can be improved when the graders have in mind that the evidence in the examination should be the behavior taught in the course. For example, if the behavior being tested is the ability to apply principles in solving problems, the behavior each grader should look for is evidence that students can determine the solution to a problem and state the principles which apply in arriving at the solution. This type of behavior is not to be confused with the mere recall and statement of principles from memory. Scoring an evaluation on the second type of behavior will yield results different from scoring it on the first type of behavior.

Methods of evaluation. — When you are lecturing you are sending out messages with the hope that the messages are being received by the students as you intended and that the students are developing the kind of behavior expressed in the objectives of the teaching. Evaluation consists of methods of finding out whether the students are developing this behavior or these behaviors.

Many of the evaluation concepts discussed up to this point were illustrated using paper and pencil examinations. This is only one means of getting evidence of the achievement of students in the objectives of the course. A more complete evaluation includes other means of getting such evidence for the instructor's purposes.

Observation of students in class discussion is a means of getting evidence of students' achievement in the course. You can discover whether in general your presentation of concepts and principles has been understood. But this is not too good a method for getting evidence about individual students except for the more vocal ones who express themselves. Nevertheless, this feedback gives you some clues about the effectiveness of your teaching methods.

Problem situations can be presented to the class for discussion, and the manner in which the students use the concepts and principles taught can be observed, and interpretations can be made about whether the students can only state the concepts and principles or whether they understand them well enough to use them in problem solving.

Class reports made by the students on the course references will show you how well the students understand the content and whether they understand it well enough to make clear and effective presentation to the class. It has been said "a person hasn't learned something until he can teach it." Although this is not universally true, there is an element of truth in it.

Tests given at frequent intervals during the course will give you evidence about how well individual students are progressing during the course.

Three general types of tests — teaching, mastery, and measurement — are described by Green and McDougall (12). Each of these test types has different functions and a different level of difficulty. The mastery test is used to measure essential fundamental skills which each student should master, and almost all students might be expected to get all test items correct. Teaching tests may be graded by students in class and have as their primary aim identification and correction of student errors, but they should not be used for assignment of marks. Measurement tests should have about a 50 per cent level of difficulty (that is, half the items answered correctly by all students), and the items should be arranged from zero level of difficulty (answered correctly by all students) to one hundred per cent level of difficulty (answered incorrectly by all students).

After the test has been tried out for the first time, a simple item analysis can be made by counting the number of correct responses on each item by students in the top third and the bottom third of the class (12). This information can be entered on the file cards on which the item was originally written, and it provides a basis for refining the item for later use. Over a period of years, if you prepare tests carefully and keep the items and item analysis data, you can build an extensive file of good test items from which several nonduplicative tests can be prepared to measure a given set of teaching objectives.

In *grading tests,* Weston (4d) advises instructors to break essay examination questions into component parts of essential points required. It is far less strenuous, he says, to make many small judgments than to make comprehensive, judicious evaluations which have long complicated answers. After identifying parts, grade them question by question, not examination book by examination book, because by taking one question for all books you can concentrate on one line of thought. He also suggests that in order to avoid becoming increasingly more severe in grading, that you make a preliminary survey of the answers to each question in 10 representative examinations books. From this you can determine point by point, with appropriate values, the scope and emphasis essential to the answer and then use this as your standard in grading.

Other evaluation methods. — For an overnight assignment or class discussion, you can give a problem situation and a proposed solution for the *students' criticism* and explanation of their criticism (8). You can note the pertinency of their criticism such as the assumptions they recognize in the proposed solution of the problem.

Products developed during the course are evidence of achievement in the objectives of the course, such as a drawing for a new machine, a blueprint outline of an organization to do a certain job, the content of a job description, a list of the major concepts in the course or part of the course, a theme written in the foreign language of the course, a plan for teaching a course, and a variety of other products.

A *term paper* is another means of getting evidence of the degree to which students are reaching the objectives of the course. For example, if your teaching objective is to help students apply the principles of the course to life situations, they can be assigned to choose a problem situation in their life, describe it, develop a proposed solution, and state the principles that apply to the problem situation and to the proposed solution. The degree to which they state and correctly interpret pertinent principles indicates their understanding of the application of those principles.

Feedback evaluations can also be obtained by asking the students to list the five most important ideas they learned in the course; to list the parts of the course that were not clear; or to prepare a ten-question examination for the course. It might be helpful to you to see what concepts or parts of the course are listed by many students and the ones listed by only a few students.

Everyday evaluation. — The above illustrations indicate that evaluations can be made many times during the course and not only at the end. Opportunities for evaluation present themselves almost minute by minute during the teaching.

It is also clear that the methods of evaluation are used as methods of teaching and that the methods of teaching are used as methods of evaluation.

Analysis of Teaching Styles

An instructor who takes evaluation seriously seldom confines his efforts to the evaluation of student performance. Always in the forefront of his mind is the question: What makes good teaching? What variables distinguish good from poor teachers? There have been countless efforts to answer these questions.

Allport's teacher evaluation plan. — Allport (4e) undertook a pilot study at Harvard University of weekly section meetings in a large elementary course in social science. These meetings took the form of discussion groups. Observers and a one-way screen were used to collect data. The experimenters consider the findings of the study as of less importance than the procedure followed, but they do commend the latter.

The experimenters used a limited and operational set of criteria for measuring the dependent variable. They were: (1) student grades; (2) attendance records; (3) student participation: (a) number of different students who recite, ask questions, or otherwise participate during the hours; (b) number of students who give visible signs of wishing to participate; (c) number of students who discuss intellectual issues with the instructor after class or during office hours; (d) ratio of participation during the first and second halves of the class period; (4) manifestations of students' interest: (a) occasions of inattentiveness; (b) overall rating on interest made by observers; (c) indications of hostility; (d) observers' summary judgment.

To get the students' own opinions, the experimenters used an evaluational rating sheet. This was concerned with the values students found in the second meetings in terms of information or ideas supplied, preparation for examinations, distribution of time, extent to which instructor seemed well informed, good planning and organization, interest sparked by instructor, curiosity in subject matter provoked by instructor, and overall worthwhileness.

To define the independent variable — style of teaching — the experimenters identified 12 factors not yet *proved* to be associated with good or poor teaching but accessible and measurable (4e). These are:

"1. Stating the agenda: Some teachers make clear at the start of an hour — perhaps verbally, perhaps with a blackboard outline — what will be covered during the period. Occasionally, of course, the agenda for the hour are so clearly defined by the assignment that a restatement would not be helpful. Still it is possible to estimate whether or not a teacher characteristically sees to it that the agenda for the day are clear.

"2. Proportion of time spent in lecturing or expounding: Some teachers do all or most of the talking; others say relatively little during the hour, assigning most of the time to student discussion.

"3. Teacher-member centering vs. student-student centering: Usually the teacher is a necessary focus, a relay point, in class discussion. Sometimes, however, one notes that a class for a time appears to run itself. Students talk directly to students, perhaps arguing in a lively fashion, without the teacher's intermediation. It is possible, and potentially profitable, to count such episodes, for they would not occur unless it was part of the teacher's style to encourage and permit them.

"4. Directive vs. non-directive questioning: Some teachers use a straight drill or recitation method of conducting a class. The teacher asks a question and the student gives the right answer if he can. We may call this 'directive questioning.' At the other extreme a teacher may open the class and keep it going by 'non-directive question,' such as, 'What aspect of the assignment would you prefer to discuss?' 'Any comments on Mr. X's observation?' 'Do you feel satisfied with the text's treatment of this point?' Most teachers, of course, employ both types of questions; but the proportion characteristically differs from instructor to instructor.

"5. Commendation and acceptance: Some teachers give occasional praise for student's contribution to the discussion; some do not. Some have other ways of 'tying in' the student who has spoken with the on-going stream of the discussion so that he may feel 'accepted.' Experience shows that it is relatively easy to count instances of this practice in teaching.

"6. Rejection of student: Conversely, one may count instances where the teacher, by word or manner, implies that the student is 'off the beam,' or that his contribution is not welcome. Rejection of a student's response is not the same as correcting a wrong answer. It is possible to tie in a wrong answer so that the student himself does not feel rejected.

"7. Disregard of student: One may count the number of times a teacher fails to see upraised hands, or if he sees them, fails sooner or later to acknowledge them. There are times, of course, when nearly all the hands in the class are waving in the air. No teacher could acknowledge them all. But habitual oversight, included in an overall rating on the teacher's tendency to disregard students' efforts to participate, can provide a useful measure.

"8. Use of blackboard: Some teachers often use the blackboard; others, teaching the same subject matter, seldom or never do so. Some are remarkably explicit in their outlines or diagrams; some draw an ambiguous sort of illustration and 'doodle' on the board as a nervous accompaniment to their stream of speech. Observers are in a position to rate the instructor's use of the blackboard. Does he use it often? Is his meaning clear?

"9. Use of illustrations from everyday life: In elementary courses, to which our discussion is confined, it may be that an important teaching variable is the tendency of the instructor to fortify the lesson with fresh illustrative materials drawn from common experience. The number of such instances during an hour's teaching can be recorded.

"10. Digressive material: An observer thoroughly familiar with the course being taught can judge to what extent the instructor has permitted wide digression and irrelevancy to creep into the discussion. It is not expected that occasional digression will correlate with bad teaching; indeed it may be essential to good teaching. But over a period of time it is well to know whether an instructor's teaching style is or is not marked by persistent wandering from the subject.

"11. Note taking: In most section meetings it is up to the student whether or not he wishes to take notes. The observer, of course, cannot count every occasion on which any student writes in his notebook. He can, however, estimate whether there was much or little note taking during the hour. Presumably this variable reflects the style of teaching — for some teachers give little summaries, or otherwise stimulate note taking; others do not. Which is the better style we do not yet know. Of course, if the teacher commands or suggests that notes be taken, the variable should not be employed.

"12. Humor: The observer can note down occasions when there were scattered smiles, also outbursts of laughter. In the long run these records are bound to reflect the instructor's own humor and his tendency to introduce a light touch into the conduct of his class."

All of these twelve variables are based on objective measures. The observer counts the number of happenings of a given type during a class period. Three additional variables are recommended; these are of a more subjective nature, calling for the use of a rating scale. A four-point scale has been found useful for this type of recording:

"13. Self-confidence: Many teachers are manifestly ill at ease; others, whatever they may feel inside, give the appearance of poise and self-confidence. Ratings on this variable are relatively reliable.

"14. Vocal assertiveness: An overall rating on this variable seems potentially useful. Some voices are definitely outgoing, some withdrawn. There are, to be sure, subtler variables pertaining to voice quality that might be studied; but for our initial list we shall include only this broad characteristic of vocal habit.

"15. General organization of the teaching hour: Over and above the particular features of style included in this list, it seems worth while to obtain an overall rating on the extent to which the instructor carried through a plan of organization in his work for the day. Was the hour well-structured or was it haphazard?"

The most striking fact the experimenters found from the comparison is that students and observers judge overall value of teaching on different bases. Allport (4e) states:

> "The students seem to favor the section conducted in an informal, friendly, permissive, equalitarian manner by a teacher who is authentically one of the boys — modest and humerous. . . The "experts" see greater value in sections conducted more after the fashion of a drill, marked by good organization, with adequate coverage of ground."

In the case of the instructor rated higher by students, Allport judged that students sensed his keen interest in individual members of the class and his eagerness to help them in any way he could. On the other hand, Allport decided that the instructor rated highest by observer "experts" was disturbing to students because of the inconsistency of his style. They did not know just where they stood with him.

Allport (4e) concludes:

> "It may well turn out that consistency is an essential attribute of really good teaching. It

may not matter whether the instructor is formal or informal in manner, so long as he maintains the role he has once established — that is, so long as he appears to the student to be *himself*."

Self-evaluation checklist. — Graduate School instructors may find that following such an ambitious plan as Allport devised to evaluate teaching is prohibitive. They may prefer to use a simpler (but more subjective) plan of self-evaluation. The following example has been developed by the District of Columbia Work and Training Opportunity Center, Department of Public Welfare:

Questions For Self Evaluation of Adult Education Teachers

I. Planning and Preparation of Work

1. Do you prepare an outline of your course?
2. Do you adjust the outline to meet trainee needs after meeting with the class?
3. Do you prepare daily lesson plans?
4. Do you seek criticism of these plans?
5. Do you test your plans —
    a. for specific achievable objectives?
    b. for meeting broad adult education objectives?
    Ex. creativity; independent thought; good citizenship.
    c. for variety of methods?
    d. for possible use of resource people?
    e. for maximum use of aids and devices?
    Ex. films, charts, displays.
    f. for progression in subject matter?
    g. for maximum student participation?
    h. for utilizing special student abilities?
    i. for handling individual differences?
    j. for maximum use of class time?
    k. for proper review of previous work?

II. Classroom Performance

1. Are you satisfied with the interest shown by our trainees?

2. What is the holding power of your class, the ratio of attendance to registration?
3. What indications are there that you provide a friendly, informal atmosphere for the class?
4. Are you able to follow your lesson plans?
5. Do you keep a record of trainee progress, or get the trainee to do so?
6. Have your trainees learn ways to appraise and evaluate their own work?
7. Do you see any evidence of having stimulated outside study or practice?
8. Do you communicate with trainees on their level of understanding?
9. Do you give careful attention to the physical condition of the meeting place?
10. Do you encourage the use of the library?
11. Do you have periodic student evaluations?
12. Do students come to you for guidance?
13. Do you know your community agencies and their services?
14. Do you use cooperative planning procedures in the classroom?

In conclusion, no such instruments can measure adequately the art of teaching. But if they can help you to ponder more insightfully the skills which that art employs, perhaps the process will be of value.

2

BIBLIOGRAPHY

1. Bloom, Benjamin S. (ed.) Taxonomy of Educational Objectives, Handbooks 1 and 2. New York: David McKay Co., Inc., 1956.

2. Bruner, Jerome S. The Process of Education. Cambridge: Harvard University Press, pp. 17-20.

3. Corey, Stephen M. Association of American Colleges Bulletin, March 1947, p. 185.

4. Cronkhite, Bernice B. (ed.) A Handbook for College Teachers. Cambridge, Massachusetts: Harvard University Press, 1951, pp. 272.
    - 4a. Chapter I, "The Teaching Process" by Ivan A. Richards, pp. 7-11.
    - 4b. Chapter V, "Teaching the Humanities" by Andre' Morize, pp. 86-88.
    - 4c. Chapter II, "Conflicts in the Learning Process" by William G. Perry, Jr., pp. 32-33.
    - 4d. Chapter IV, "Values, Methods and Criteria in Teaching" by William H. Weston, p. 82.
    - 4e. Chapter III, "How Shall We Evaluate Teaching" by Gordon W. Allport, pp. 37-47.

5. Dale, Edgar. Audio - Visual Methods in Teaching. New York: The Dryden Press, 1954, pp. 42-56.

6. Eaton, Theodore H. College Teaching: Its Rationale. New York: John Wiley & Sons, 1932, pp. 132-135.

7. Ford, G. W. and Pugno, L. (eds.) The Structure of Knowledge and the Curriculum. Chapter 1. "Structure of the Disciplines: Meaning and Significance" by Joseph J. Schwab. Chicago: Rand McNally & Co., 1964, pp. 28-30.

8. Frutchey, Fred P. Evaluation in Teaching. Washington, D. C.: Division of Extension Research and Training, Federal Extension Service, 1966.

9. Furst, Edward J. Constructing Evaluation Instruments. New York: Longmans, Green and Co., 1958.

10. Gagne', Robert M. The Conditions of Learning. New York: Holt, Rinehart, & Winston, 1965, pp. VI; 20-28; 268-271.

11. Garrison, Roger. The Adventure of Learning in College. New York: Harper Brothers, 1959, pp. 93-104; 131-137; 181-206.

12. Green, John A. and McDougall, William P. "Basic Ideas in Test Construction" Proceedings of the Extension Training Conference, Pullman. Washington, 1959.

13. Hatch, Winslow R. "What Standards Do We Raise?" New Dimensions in Higher Education, No. 12. Washington, D. C.: U. S. Government Printing Office, 1963.

14. Jensen, Gale E. "The Sociopsychological Structure of the Instructional Group," The Dynamics of Instructional Groups, 59th Yearbook. Part II. National Society for the Study of Education. Chicago: The University of Chicago Press, 1960, pp. 95-104.

15. Kuhlen, Raymond G. (ed.) Psychological Backgrounds of Adult Education. Boston: Center for the Liberal Education of Adults, 1963, pp. 77-109; 114-141.

16. Lorge, Irving, et al, Psychology of Adults, Adult Education Association of the U. S. A., 1225 19th St., N. W., Washington, D. C., 1963, pp. 20-30.

17. Mager, Robert F. Preparing Objectives for Programmed Instruction. San Francisco: Fearon Publishers, 1962.

18. Miller, Harry L., Teaching and Learning in Adult Education. New York: The MacMillan Co., 1964, pp. 37-50; 315.

19. Miller, Harry L. and McGuire, Christine H. Evaluating Liberal Adult Education. Boston: Center for the Study of Liberal Education of Adults, 1961.

20. Miller, Marilyn V. (ed.) On Teaching Adults: An Anthology. Boston: Center for the Study of the Liberal Education of Adults, 1960.

21. Tyler, Ralph W. Basic Principles of Curriculum and Instruction. Chicago: The University of Chicago Press. 1965.

22. Tyler, Ralph W. Concepts, Skills and Values and Curriculum Development. Talk given at Extension Curriculum Development Conference. Washington, D. C.: Division of Extension Research and Training, Federal Extension Service, 1963.

23. Whitehead, Alfred North. The Aims of Education. New York: The MacMillan Company, 1929, p. 147.

24. Woodruff, Asabel D. Basic Concepts of Teaching. San Francisco: Chandler Publishing Co., 1961, pp. 265-275.

APPENDIX

Items A-E in this appendix have been contributed by Dr. Mary L. Collings. She has used these techniques in adult education courses and has found them helpful in learning about the students and their backgrounds. This information has also helped her plan her courses to meet the needs of the students. We include them in the hope that, by adapting them to your subject, they may be helpful to you.

ITEM A.

GENERAL INFORMATION ABOUT STUDENT

For use in planning class sessions, I would like to have some general information about each student in the class. Please answer each of the following questions with either check marks or by filling the blanks as indicated.

1. Name: ______________________________

2. Residence: (a) D. C. __________ (c) Va. __________
(b) Md. __________ (d) Other __________

3. What is your present job? ____________________

4. How long have you been in your present work? __________

5. What, if any, positions have you held prior to the present one? ______________________________

____

6. What is your purpose in taking this course? __________

____

7. What are some of the kinds of things you hope to learn from it? ______________________________

8. Education: Name of college you attended __________; Degree Rec'd __________ ; Graduate work beyond degree ___ yes ___ no; If advanced degree, give name of school and field in which granted ____________________.

9. Have you ever received college training in any of the following subjects? Check (x) those in which you have had training.

__Working with groups
__Methods of teaching
__Conference leadership
__Writing
__Radio
__Understanding human behavior
__Understanding cross cultured relations
__Planning programs with groups

10. Check types of social service courses you have had in college: (Check as many as apply).

__General sociology
__Social organization
__Social psychology
__General psychology
__Child psychology
__Adolescent psychology
__Anthropology
__Economic theory
__Applied economics
__Political science
__Education
__Educational psychology
__Group leadership

ITEM B.

WHAT IS YOUR IDEA?

On this sheet are listed twenty terms (numbered 1 to 20) often discussed in educational texts. See how many of the terms you can match up with their definitions (items a - t). Insert the appropriate letter in the blank to the left of its corresponding term.

__ 1. perception

__ 2. skill

__ 3. principle

__ 4. habit

__ 5. generalization

__ 6. concept

__ 7. performance ability

__ 8. practice

a. meditating or reflecting upon an idea or event in order to understand it.

b. a learned, highly automatic act.

c. the process whereby one reaches a judgment applicable to a whole class often on the basis of experience with a limited number of the class.

d. an act done repeatedly.

e. all the things that a human being does in thinking, acting, feeling, imagining and the like.

f. a form of learning in which principles are used to achieve some goal.

g. an overt act selected through inner wisdom and given form and effectiveness by practice.

h. a change in human disposition or capability which can be retained and which is not simply ascribable to the process of growth.

__ 9. behavior

__10. problem solving

__11. multiple discrimination

__12. readiness

__13. anomia

__14. learning

__15. thinking

__16. motivation

__17. value

i. the basic level of mental activity arising from a sensation together with a context of other experiences that give it personal meaning.

j. a construct made by the brain in effort of a person to understand something or cope with it; an idea or notion which combines the real essence of objects included under an abstraction or class.

k. a sense of alienation and despair.

l. an inner state that energizes, activates or moves and that channels behavior toward goals.

m. experience accompanied by a good feeling.

n. something that must be achieved at or about a certain phase of life if a person is to be judged, and judge himself, as a competent person.

o. capability of making different members of a particular collection.

p. a thing that seems to have a satisfying effect and is sensed to be useful.

q. a confirmation or "reward" for correct responses.

__18. developmental tasks	r. a coordinated muscular action.
__19. re-enforcement	s. a general truth or proposition leading to certain necessary influences.
__20. satisfaction	t. the adequacy of existing cognitive equipment or capacity at a given age level for coping with the demands of specified tasks.

ITEM C.

KINDS OF PROBLEMS ENCOUNTERED BY STUDENT IN WORK SITUATION

I. Managing an office.

Degree of difficulty
Much (1) Some (2) Little or none (3)

1. Handling an office call . . ______________________
2. Training and using an office secretary . . . . . . ______________________
3. Planning with others . . . ______________________
4. Learning about the various forms and handbooks
5. Learning what to file and discard . . . . ______________________
6. Understanding the franking privilege. . . . . ______________________

A. Are there other problems in the office that have bothered you?__________ ______________________
____

B. What situations in office management are most difficult for you? _______
____
Why? ______________

II. Reporting.

Degree of difficulty
Much (1) Some (2) Little or none (3)

1. Learning how to report various events . . . . ______________________
2. Collecting data for statistical questionnaires . . ______________________
3. Learning how to write narrative reports . . . . . ______________________

A. What other problems in reporting have you encountered? __________ ______________________

B. Which of the above are most difficult problems for you? ____________________

____

Why? ____________________

III. Program and organization.

	Degree of Difficulty Much (1)	Some (2)	Little or none (3)
1. Learning general operational policies. . , ...			
2. Learning policies for cooperation with other organizations and agencies			
3. Knowing my position in relation to agency advisory boards and committees			
4. Learning about programs of related organizations .			
5. Finding out what the agency program is and how it works.			
6. Getting information for planning future agency programs.			
7. Feeling that should be doing something to advance the work, but not knowing what			

A. Other problems in programming and organization that you have met ____ ____________________

____________________ ____________________

B. Which of the above situations are most difficult for you? ____________________

____

Why? ____________________

ITEM D.

The Problem of Effective Teaching and Learning

*(A Set of Self-appraisal Scales for Learners)**

Explanation: Circle the numbers which indicate as nearly as possible your own preferences.

Scale A. ***What is the motivational level at which learner prefers to operate?***

1. Learner is antagonistic to effort to work with him. Expects to do practically no work.
2. Learner sees little or no value in what is generally done in school and so expects to do as little as possible to keep from being embarrassed.
3. Learner wants to have goals for course set up by the teacher (even though he may largely reject them as valueless for him) but expects by meeting teacher's goals he can achieve his own goals, such as getting a passing mark for the course.
4. Learner wants goals set up by teacher; expects to accept them as good and to work enthusiastically to achieve them.
5. Learner wants teacher to take major responsibility for identification and selection of class goals and purposes but would like learners to have minor share in this process.
6. Learner wants teacher and learners together to assume responsibility for setting up sound goals and purposes

---

*Adapted from College Learning and Teaching, a study made by Kay H. Simpson and E. S. Brown, College of Education, University of Illinois, 1952.

of self-improvement and together take responsibility for carrying ahead class activities.

7. Learner wants to assume the major share of responsibility for setting up his goals of self-improvement to be reached through the course; wants the teacher to serve only as a general guide and at appropriate times to check to see that learning is continuing.

8. None of the above. Situation described on back of this sheet.

Scale B. *What are assignment preferences?*

1. Learner wants assignments entirely teacher-determined with no attention given to individual differences.

2. Learner wants assignments to be teacher-determined with extremely limited adjustment to individual differences possible in meeting assignments.

3. Learner wants assignments teacher-determined with considerable variability possible in what is done by individual student.

4. Learner wants assignments teacher-determined but tailored to individual learners' needs.

5. Learner wants teachers and learners to determine group assignments through teacher-learner planning with assignments almost the same for all.

6. Learner wants teacher and learners through cooperative planning to set up assignments which to a considerable degree allow for individual differences.

7. Learner wants, with appropriate aid from the teacher, to determine short-time and long-time plans for application of what is learned.

8. None above fits views. Situation described on back of back of this sheet.

Scale C. ***What practice in guided problem selection is preferred?***

1. Learner wants all problems to be studied to be selected for the learner by someone outside the immediate classroom or because they happen to be in a particular text.
2. Learner wants teacher to select problems for study with some consideration for needs of group being taught.
3. Learner wants teacher to select problems for study with some consideration for needs of individual learner who is to study problems.
4. Learner wants teacher to select areas for study but wants learners to have some leeway in selecting problems within area.
5. Learner wants teacher and learners together to select problems for study on a group basis.
6. Learner wants teacher and learners together to select problems for study on an individual basis.
7. Learner wants on his own initiative to select for study the problem that on the basis of sound criteria, it seems best for him to study. He wants to solicit guidance from others as needed and wants teacher to check occasionally to see that this is done.
8. None of the above fits. Situation described on back of this sheet.

Scale D. ***What practice in problem solution is preferred?***

1. Learner wants to spend time absorbing information on the solution to problems which others have solved but not try even mentally to solve problems himself.
2. Learner wants possible solutions to problems even though of limited meaning to him to be verbally tried out by someone in learner's presence.

3. Learner wants to study through the steps which others have taken in solving problems that are meaningful to the learner.
4. Learner wants all learners in the class to have an opportunity to work out possible solutions to problems they as a group have selected for study as a group. All students work on same problems.
5. Learner wants to try out before the class possible solutions which are meaningful to the learner, because he has helped to develop them. The learner actively participates in examining the merits of each proposed solution.
6. None of above fits. Situation described on back of this sheet.

Scale E. ***What is preferred way to develop evaluative abilities?***

1. Learner prefers that class work be carried on without any apparent evaluation by anyone.
2. Learner prefers that teacher attempt to do all evaluating and restrict himself almost entirely to measuring amount of information recalled as presented.
3. Learner prefers for teacher to do all evaluating, but is interested in checking on areas of learning such as attitudes and abilities to apply principles to new situations in addition to amount of information recalled.
4. Learner prefers that teacher and learner attempt to evaluate a variety of types of learnings.
5. Learner prefers that teacher and learner attempt to set up and use evaluation suitable to the individual learner's needs and purposes.
6. Learner prefers to assume major responsibility for self-evaluation of his learning processes and seeks help and guidance from others as needed. Teacher periodically checks to see that learner is seeking needed help.
7. None above fits. Situation described on back of this sheet.

Scale F. ***What is preference in learning thru reading?***

1. Learner prefers for practically all reading to be specifically assigned books with grades dependent on notes taken by students on these references.
2. Learner prefers for reading to be selected from a general reference list which teacher and learner together use to identify problems and suggest possible solutions but with teacher assuming primary responsibility for identifying appropriate reading and testing application to problems.
3. Learner prefers for reading to be done to help in problem identifications, selection and solution with the learner assuming the major share of responsibility for keeping learning processes under way. Teacher to give suggestions and guidance as these are needed.
4. None above fits. Situation described on back of this sheet.

Scale G. ***What is preference in learning how to find resources needed in identifying and solving problems?***

1. Learner wants to have no practice in finding resources outside those provided by fellow students or teacher.
2. Learner prefers for teacher to show how others get resources to be used in learning but he does not want to get practice himself.
3. Learner prefers to be encouraged to try to get additional resources himself.
4. Learner prefers to have the class as a group to study ways of getting appropriate resources and actually practice getting needed resources.
5. Learner prefers to assume himself, major responsibility with needed guidance in learning ways of getting appropriate resources. He practices abilities in getting resources which will help him solve problems identified as important to him.

6. None above fits. Situation described on back of this sheet.

Scale H. ***What is preference for practice in democratic group discussion?***

1. Learner prefers for teacher to do practically all the talking and learner's role to be to copy down and recall what teacher has said.

2. Learner prefers for teacher to lecture or otherwise present ideas but to encourage questions and even permit limited expression of opinion on topics teacher selects.

3. Learner prefers free and frank discussion of various points of view on subjects that teachers and learners have cooperatively selected but wants exchanges limited to comments between teacher and learner, never between two learners.

4. Learner wants problems cooperately identified by the teacher and learner discussed by the group on the subjects but wants teacher to assume a dominating role in guiding discussion.

5. Similar to number four except that preference is for teacher to seldom assume a directive role.

6. Learner prefers for group to assume major responsibility for selection of problems for presentation and the carrying on of discussion with the teacher assuming only an advisory role.

7. None above fits. Situation described on back of this sheet.

ITEM E.

A STUDY-DISCUSSION OUTLINE

Divide class into small groups (3 - 5 in a group). Ask each student to read a one or two page assignment of reference material more or less typical of the reading to be done in the course. Ask them to follow the following steps in preparation and discussion*:

Step 1–Preparation

a. Read through the outline completely; then read the assigned material.

b. As you read assignment, underline words or concepts which are new to you or with which you have some difficulty.

c. As you read, jot down ideas which occur to you as fitting in with various steps to be followed in the discussion as listed below.

Step 2–Clarifying Terms

a. Select a group leader by having members on signal point to one of the group.

b. Begin discussion, with clarification of terms. Each student cite words or concepts with which he had difficulty.

c. Try to define or explain, in turn, each of the words or concepts on students' list.

d. Re-state what someone else has said to make sure each person understands it.

e. Give examples to clarify meaning.

---

* Adapted from Learning and Teaching through Discussion by Ida Stewart Hill and William F. Hill, (Boston Center for the Study of Liberal Adult Education for Adults). 1960.

Step 3–Stating the Message

a. State in your own words the central idea of the reference material.

b. State the ways in which your understanding of the central idea differs from that stated by another.

c. State how any ideas in the reference material contradict, substantiate or amplify any previously held idea you had.

d. Try to state puzzling aspects of the material that are giving the group trouble.

Step 4–Testing and Evaluating

a. Explain the usefulness, if any, of the central idea in understanding some aspects of your work; how does it throw light on some experience that you have had.

b. If warranted by your experience, question the arguments or reasoning of the author.

Step 5–Application

a. Test the usefulness of the material, or any part of it, by constructing a situation for which it should be useful.